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ARTICLES EXHIBITED

IN THE

SOUTHERN EXPOSITION OF 1883

AT

LOUISVILLE, KY.,

FROM THE MUSEUM

OF THE

U. S. BUREAU OF EDUCATION,

DEPARTMENT OF THE INTERIOR.



WASHINGTON:

GOVERNMENT PRINTING OFFICE,
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ARTICLES EXHIBITED.

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,
Washington, D. C., August 6, 1883.

In a rural school of an adjoining State, the class in geography had repeated their lesson for the day with much fluency, giving the definitions of terms and other details exactly as they were printed in their text-books. A thoughtful visitor, having obtained leave to question the class, asked a bright-looking little girl if she would tell him what geography was. She replied that it was "a description of the earth's surface." "And," continued the visitor, "have you ever seen any part of the earth's surface?" The little girl answered "No;" and the rest of the class gave the same answer when asked.

Results like this are always obtained where teaching from the text-book is the sole method and a repetition of its contents the only criterion of acquirement. This is not nature's way of teaching; the child learns by using his senses, and remembers best what he sees, hears, and handles most fre-

quently; his plays are constant trials of his own powers, perpetual voyages of discovery into the unknown regions about him; he is a rigid but narrow reasoner, because his experience is so limited and the variety of circumstances and events is so boundless. His elders can aid him, but they cannot supplant his own efforts without hindering his progress, dulling his faculties, or giving him some unforeseen twist of mind, body, or soul.

Believing that the true art of teaching, like Shakespeare's banished Duke in the forest of Arden,

Finds tongues in trees, books in the running brooks,
Sermons in stones, and good in everything,

and remembering how parable and story, in sacred and profane writ, teach by means of animals, plants, and every-day incidents, the articles exhibited by the Bureau of Education are designed to show how the method of nature in teaching has been and should be followed, using the text-book (which is only a concise and imperfect *résumé* of observed facts) as a useful adjunct, but by no means as the chief instrument for the education of the child.

1. REVOLVING CASE OF COMMON THINGS ILLUSTRATING THE APPLICATION OF SIMPLE MECHANICAL PRINCIPLES.

The articles in this case are examples of the kind of illustrations that may be used for conveying to

the mind clear ideas of the elementary mechanic forces in their familiar applications. The child in raising the door-latch has never thought he was using a lever. These models may suggest to the ingenious teacher how, in lack of such models, he can yet everywhere about him find objects for illustrating the elements of physics.

On the lower shelf, three toy models show the action of the law of the centre of gravity: the principle of balancing.

A card on which are strips of the common metals is arranged to show the comparative density (hardness) of steel, iron, zinc, tin, and lead.

Another card of samples similarly arranged shows the relative tenacity of iron wire, copper wire, manila hemp, New Zealand hemp, American hemp, flax, cotton, and silk.

On the middle shelf is a card of small squares of metal, for the study of familiar metals; these are iron, zinc, tin, lead, copper, silver, and gold.

A small log of wood on end, with a wedge inserted in one end and a mallet lying beside it, illustrates the use of the wedge.

A nut-cracker, with some nuts, shows how the principle of the lever is applied in common articles of use.

The model of a fire grate may serve to illustrate the simple principles of heat and air currents.

A step-ladder furnishes another illustration of the action of the centre of gravity, balancing.

Upon the top shelf, a model of pulley blocks with cords illustrates the working of the pulley and the multiplication of power by mechanical contrivance.

A model of an inclined plane with a pair of wheels illustrates also the wedge principle and the application of gradients to overcome acclivities: how roads are led up steep hills, &c.

A simple lever, an old-fashioned door-latch, and a block on rollers, with a crowbar beside it, all illustrate various common applications of the principle of the lever.

A collection of models of cubes, prisms, curves, &c., illustrates geometrical forms.

2. *GLASS CASE CONTAINING SCHOOL SEWING WORK FROM BOSTON, MASS.*

Sewing, an art coeval with humanity, but much neglected by many of late years, forms a part of public instruction in the grammar schools for girls in Boston. These specimens are by children between 11 and 13 years of age, pupils of the Winthrop School.

3. *MODEL OF A RURAL SCHOOL-HOUSE, BY CHARLES SELTMAN.*

This is one of a series of models in the museum collections of the Bureau of Education which serve

to illustrate the development of the school-house, from the simple log house of the pioneer to the elaborate modern city school building.

Such models of proposed buildings are also most valuable as showing their actual appearance. If similar models of all proposed important buildings in the United States were made and carefully studied before beginning the construction of the building, as is now often done in European countries, a sum being definitely appropriated for this purpose, the errors would be less numerous and the cost smaller than is now commonly the case.

4. *GLASS CASE CONTAINING KINDERGARTEN AND KITCHEN-GARDEN MATERIALS.*

The Kindergarten, a system of instruction for children from two to six years of age, in which their inventive, constructive, and moral powers are developed by pleasing exercises, is represented by material showing colors, solids, surfaces, and lines. Six worsted balls present the colors of the rainbow; and worsted yarn in skeins, with a cow's head wrought with similar material, indicate ways in which the knowledge of color is brought into practice. On each side of the color exhibit are solids, made up of blocks of different forms and dimensions. Above one of these solid figures are surfaces in colors, formed by combinations of tri-

angles; above the other are representations of lines, both straight and curved, and of figures and outlines made from straight sticks and from parts of rings. A hand-book of the Kindergarten and specimens of weaving, folding, plaiting, &c., done by pupils, constitute the remainder of the exhibit.

In the case with the Kindergarten material and immediately below it are miniature household utensils employed in the Kitchen Garden. This is a system of education devised by Miss Emily Huntington, by which little girls, in classes of twenty-four each, using these articles, are taught domestic work. The miniature implements of the kitchen and laundry are here arranged, not according to the order in which they are used, but as space and convenience require. At the bottom of the case are stairs and a brush for cleaning them, chairs, duster, and dust-pan. At the left are a wash-tub containing soiled clothes, a wash-board, and clothes-pins. A table set with common dishes and implements is flanked on one side by cooking utensils and on the other by a dish-pan and cloths. The exhibit also contains a house-broom, whisk-broom, and Kitchen Garden primers.

5. *SIXTEEN OBJECT-LESSON CARDS.*

Each card bears on its face some of the raw material that it describes and some specimen of the uses to which it is put for human comfort.

The lower cards in this trophy show materials derived directly from the earth and the ocean, the middle cards show vegetable productions, and the upper cards bear animal products.

Thus, even the commonest objects that surround us may be used for the best teaching that children can receive.

6. *EIGHT SCIENCE-TEACHING CHARTS.*

These charts are a part of the apparatus devised and used by Mr. Thomas Twining, of London, England, in his system of teaching the useful sciences in an easy and progressive way.

Another part of Mr. Twining's apparatus is shown in the revolving case near by.

7. *COLLECTION OF MODELS FOR FREE HAND DRAWING FOR USE IN PUBLIC SCHOOLS; DESIGNED BY PROFESSOR WALTER SMITH, STATE DIRECTOR OF ART EDUCATION IN MASSACHUSETTS, AND MADE BY THE PUPILS OF THE FREE INSTITUTE OF INDUSTRIAL SCIENCE, WORCESTER, MASS.*

Drawing is a universal language common alike to mechanics and artists; useful in all employments, essential in many.

Drawing can be taught to classes in school as readily as reading or writing and by the same

teachers, and should form a part of the regular studies of every school. It is the basis of all progress in manufactures and the arts. The experience of England, France, Germany, Russia, and of Massachusetts, as well as of many of the cities in the United States, proves that a progressive system of drawing, based on geometry and accompanied by lessons in free hand drawing, can be generally and successfully introduced in public schools, and that it has a direct bearing upon industries.

Upon this trophy are arranged many of the models designed for use in schools by the classes in free hand drawing.

They are both in solids and outlines, the latter illustrating perspective. The solids comprise geometrical forms, the cube, the cylinder, the cone, and also samples of vases, solids designed in artistic form. Their size, adapting them for use in the school room, the designs, in accord with the progressive system of Walter Smith, and their cheapness alike commend them to the attention of all educators. * Not till drawing is as commonly taught in all public schools as reading now is, will the people of the United States be prepared to compete in the products of artistic industries with the workers of European countries.

8. *INSTRUCTION IN GEOGRAPHY AND
RELATED BRANCHES.*

The materials in this part of the exhibit consist of—

- (a) Relief maps.
- (b) Geographical landscapes.
- (c) Architectural views.

RELIEF MAP OF MONT BLANC.

RELIEF MAP OF SWITZERLAND.

A very striking and useful appliance in studying geography, topography, meteorology, and similar branches is the relief map. Two specimens of this appliance are exhibited in this collection showing how different scales can be used to advantage for different purposes. This relief treatment is susceptible of great development and various application, of which that given below illustrates one phase of its utility.

RELIEF MAP FOR BLIND CHILDREN.

This device, invented by Dr. M. Anagnos, principal of the Perkins Institution and Massachusetts School for the Blind, is intended for the instruction of this afflicted class in the elements of geography. Rivers, lakes, and oceans are depressed; mountain chains and names of important parts of the earth are elevated above the general surface.

GEOGRAPHICAL LANDSCAPE: THE ARABIAN DESERT,
BY J. HÖLZEL.

GEOGRAPHICAL LANDSCAPE: SCENE AMONG THE ALPS,
BY J. HÖLZEL.

GEOGRAPHICAL LANDSCAPE: THE BAY OF NAPLES, BY
J. HÖLZEL.

GEOGRAPHICAL LANDSCAPE: PLATEAU OF ANAHUAC,
BY J. HÖLZEL.

GEOGRAPHICAL LANDSCAPE: THE CAÑON COUNTRY,
BY J. HÖLZEL.

Since the word "geography" means a description of the earth, every appliance that can give an adequate idea of the various parts of the earth's surface can and should be used for this purpose.

ARCHITECTURAL VIEW: THE TEMPLE AT AEGINA, BY
J. LANGL.

ARCHITECTURAL VIEW: THE TOMB OF CYRUS, BY J.
LANGL.

ARCHITECTURAL VIEW: THE MOSQUE OF HASSAN AT
CAIRO, BY J. LANGL.

ARCHITECTURAL VIEW: THE MOSQUE AT CORDOVA, BY
J. LANGL.

This exhibit contains four views of celebrated buildings, selected from those published by Mr. Langl. How vividly such inexpensive but accurate reproductions illustrate all studies in geography, history, art, &c., is too well known to need recapitulation here.

9. *MUSIC CHARTS, BY I. I. SCHÄUBLIN.*

The opening numbers of a series of charts for the instruction of classes in music are here exhibited. By this means, not only is a useful and delightful art conveyed to the people, but its proper exercise strengthens their lungs and voices and preserves among them the national airs, songs, and ballads to which patriotism and historical science are equally debtors.

10. *COLLECTION OF EARTH-TILLING IMPLEMENTS, MODELLED BY L. RAU.*

The progress of the human race since the dawn of history is strangely like the course of a human being from birth to maturity. Perhaps, indeed, each little child rehearses in his own person some part of the strange experience through which his race has passed. As the child is, so man once was. Here are shown the beginnings of such tilling implements as the spade and the plough. Evidently the diverging branches of some tree, reduced to convenient length and united by a short piece of the trunk, formed the original tool from which both have been developed, the shorter branch being sharpened for piercing or scratching the earth and the other being used now like the handle of a pick-axe and now like the beam of a plough. Early man had very few utensils and put each to many uses.

From this rude implement to the skilful and con-

venient tools of to-day, what an enormous advance! Yet the difference has been gained by countless small steps and wearisome labors of which we have little conception. What a lesson in patience is this silent display of models, useful primarily to students in agricultural schools, but capable secondarily of teaching all who see them what dominion man can gain over nature in all departments of thought and effort.

11. *FOUR PICTURES OF JAPANESE SCHOOLS, PAST AND PRESENT.*

These water colors, presented by the Japanese Government, are part of a collection designed to show the progress of that country in the adoption of the best western methods and appliances of instruction, as contrasted with the mechanical routine and memoriter method used for many centuries before the year 1872.

In many important respects Japan is the pupil of this country; let us be careful that the scholar does not surpass the teacher in this vital matter.

12. *PORTRAITS OF PERSONS DISTINGUISHED IN CONNECTION WITH AMERICAN EDUCATION.*

PORTRAIT OF MRS. EMMA WILLARD.

This eminent woman (born 1787, died 1870) began to teach when 17 years old; taught at Middlebury,

Vt., Waterford, N. Y., and Troy, N. Y., at which last named place her Female Seminary became one of the best known schools in this country as a pioneer enterprise in the superior education of young women. She is remembered also for many improved methods in teaching, and was the author of several text-books and other works of a high character.

PORTRAIT OF REV. BARNAS SEARS, LL. D.

Dr. Sears (born 1802, died 1880), late agent of the Peabody education fund, is a man who should be dear to the memories of many. He was one of the earliest and best advocates of free public schools; was the successor of Horace Mann, in Massachusetts; was president of Brown University for 22 years; his wisdom, firmness, urbanity, and industry found a fitting opportunity for their exercise in the work in which he ended as well as began his public life.

PORTRAIT OF HORACE MANN.

The labors of this eminent lawyer, educator, and legislator (who was born in 1796 and died in 1859) can never be forgotten while America has a free school; he was the first secretary of the Massachusetts Board of Education; his reports and his Common School Journal treated the whole subject of education as presented in his day in the most comprehensive and effectual way. His labors for the

better education of teachers, for the proper care of insane persons, and for the improvement of collegiate instruction were equally useful.

PORTRAIT OF PROF. LOUIS AGASSIZ.

This great naturalist (born 1807, died 1873) assumed as his own title the word "teacher," and this word follows his name on his gravestone. He was a superb draughtsman, an unequalled observer of facts, a close reasoner, and a man of prodigious memory. All these acquirements he used from 1848, when he came to this country, till his death, for the benefit of science and education. When asked why he did not use some part of his energies in acquiring a competence, he said with noble simplicity "I have no time to waste in money making."

PORTRAIT OF GEORGE PEABODY.

This distinguished man was born in 1795 and died in 1869. His gifts for educational purposes are honorable to his memory and to his native country. He endowed the Peabody Institute, at Peabody, Mass., with \$200,000; the Peabody Institute, in Baltimore, with \$1,000,000; another institute, at North Danvers, Mass., with \$50,000; the Museum of American Ethnology, at Harvard College, with \$150,000; the Museum of Natural History, at Yale College, with \$150,000; a museum at Salem, Mass., with

\$150,000. He also gave \$60,000 to Washington College, Virginia; \$30,000 to Phillips Academy, Andover, Mass.; \$25,000 to Kenyon College, Ohio; and \$20,000 to the Maryland Historical Society, as well as many smaller sums. He endowed an art school in Rome, Italy, and gave \$2,500,000 to the city of London for the building of decent lodging houses. His most important gift, however, was one of \$2,100,000 to the trustees of the Peabody educational fund, the interest to be expended for the promotion of general instruction in the South. This interest for the thirteen years ending 1880 was nearly \$1,200,000.





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